L111
.A3L43
v.37

LIBRARY OF PRINCETON
DEC 9 1936
THEOLOGICAL SEMINARY

# Physique of School Children

LEAFLET No. 37

UNITED STATES DEPARTMENT OF THE INTERIOR - Harold L. Ickes, *Secretary*

OFFICE OF EDUCATION - - - - - - - - - - J. W. Studebaker, *Commissioner*

For sale by the Superintendent of Documents, Washington, D. C. - - - - - - Price 5 cents

PRINCETON
DEC 9 1936
THEOLOGICAL SEMINARY

# PHYSIQUE OF SCHOOL CHILDREN

By

JAMES FREDERICK ROGERS, M. D.

*Consultant in Hygiene, United States Office of Education*

IN A SPECIAL report from the town of Athol to the State Board of Education of Massachusetts in 1841,[1] we read, "It is notorious that we are raising up in our country a generation of enfeebled men and women . . . the present race, as compared with their ancestors are short in length, deficient in size and weight and sleazy in texture. The fifteen millions of today are, by no means, the three millions of the Revolutionary era. The old hearts of oak are gone. Society is suffering under a curvature of the spine. If deterioration goes on at the present rate, we shall soon be a bedrid people. Our children grow up without strength, passing from the weakness of childhood to that of age without taking the vigor of manhood in their course." It is not uncommon to think of the golden age as past but here was pessimism with a vengeance since one man or woman of the previous generation was looked upon as more than the equal of three men or women of the early forties. Whatever other causes may have been blamed, the school committeeman did not hesitate to say "as conducive to this [deterioration] schoolhouses, ill constructed or otherwise deficient and harmful, hold a mighty agency and wield it mightily."

Improvement is not made by contentment with things as they are and we must give the school official of Athol credit with being clamorous to bring about such changes in the educational facilities of his town as seemed to promise the physical betterment of the race.

Following the introduction of medical inspection of school children at the beginning of the present century, the physical defects reported stimulated much talk of "sleaziness",

[1] Special school report. Report of Board of Education of Massachusetts, 1841–42. p. 74.

but the scales and measuring rod gave no evidence that school children were smaller than those of the generation before, while the so-often quoted "results of the draft" indicated that the men of military age were in their school days no less defective than present-day scholars.

The public schools have often been accused of interfering with the growth of their pupils and of producing certain defects which would not otherwise have come about, notably spinal curvature, and the gentleman from Athol evidently had both these retarding and deforming influences in mind when he sent in his report.

It is easy to make assertions without evidence and the reporter from Athol would undoubtedly be surprised and skeptical at the statement by Bowles [2] in 1932 that "throughout the country as a whole, and more especially in New England, there has been marked increase in the stature of old Americans over a statistically observed period of 150 years." The increase has gone on at the rate of about 0.06 centimeter a year in the population at large and about 0.08 centimeter for students. The "students" here considered were college students and the statistics are all for adults, but if the grown-ups have been growing relatively bigger then children of school age must be larger than they were a century and a half ago.

## GROWTH

School children were not measured on any important scale until the classic piece of work by Professor Bowditch in 1875.[3] In that year Dr. Bowditch measured and weighed the children of the Boston schools, sorting them as to parentage. Children of American-born parents numbered 4,327 boys from 5 to 18 years, and 3,681 girls of like ages. The heights of these children were taken without shoes and the weights with "ordinary clothing", which was estimated at an average for boys, at all ages, of 8 percent, and for girls, of 6.8 percent. The age of the child was reckoned from the last birthday.

---

[2] Bowles, Gordon T. New types of old Americans at Harvard. Harvard University Press, 1932.

[3] Bowditch, H. P. Growth of School Children. Eighth Annual Report, Mass. State Board of Health, January 1877, pp. 275–323.

For comparison with these measurements we have the study by the Public Health Service in the school year 1923–24,[4] of school children of native parents and grandparents, in four sections of the country. The northeast section included children in large cities of Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Syracuse, N. Y., Trenton, N. J., and Philadelphia, Pa. They are not quite comparable, geographically, with the children of Boston and neighboring towns of 48 years ago and, by ancestry, they are more mixed.

In the Bowditch study children of American-born parents were found to be taller and heavier than those of foreign-born parents, so that if we compare the figures presented by Collins for children of the present generation, we will not be taking advantage of statistics to prove a point. Dr. Bowditch recorded the ages of his children from the last birthday while the Public Health Service used the nearest birthday to determine age. The Boston children of 1875 were, therefore, relatively older than the children in Northeastern States of 1923–24 and should have been taller and heavier.

In both investigations the heights were taken without shoes. In the earlier one the weights were taken in ordinary clothes; in the latter the children were weighed "without coats or cloaks or shoes." The children of the present century were relatively heavier than the figures indicate. The comparative measurements from the two studies for children from 6 to 14 years of age together with the increment of growth for each, are given on page 4.

The average increase in height at all ages in the 48-year period was: For boys, 0.97 inch; for girls, 1.08 inches. The average increase in weight was: For boys, 1.45 pounds; for girls, 3.74 pounds.

These figures would indicate that despite any malign influence of school life (if such influence exists) there has been a decided increase in height and weight of children of school

[4] Statistics kindly furnished by Selwyn D. Collins, associate statistician, U. S. Public Health Service.

age in the past 50 years. That the increase at later ages is even greater at some years than it is in the beginning year of school life would indicate that school attendance has no permanent effect upon growth or has even a benign influence in this direction.

Our later racial admixtures may influence the figures given above somewhat and if children of native parents and grandparents in Boston and its vicinity could be compared with the children examined by Bowditch the rate of increase in size in a half century might be larger.

| Studies | Measurement by Age | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| **HEIGHT** | | | | | | | | | |
| *Boys:* | | | | | | | | | |
| Bowditch | 44.10 | 46.21 | 48.16 | 50.09 | 52.21 | 54.01 | 55.78 | 58.17 | 61.08 |
| Collins | 45.35 | 47.13 | 49.42 | 51.29 | 53.19 | 55.12 | 56.84 | 59.00 | 61.20 |
| (Increment) | 1.25 | .92 | 1.26 | 1.20 | .98 | 1.11 | 1.06 | .83 | .12 |
| *Girls:* | | | | | | | | | |
| Bowditch | 43.66 | 45.94 | 48.07 | 49.61 | 51.78 | 53.79 | 57.16 | 58.75 | 60.32 |
| Collins | 44.84 | 46.56 | 49.23 | 51.11 | 53.16 | 55.20 | 57.43 | 59.97 | 61.32 |
| (Increment) | 1.18 | .62 | 1.16 | 1.50 | 1.38 | 1.41 | .27 | 1.22 | 1.00 |
| **WEIGHT** | | | | | | | | | |
| *Boys:* | | | | | | | | | |
| Bowditch | 45.14 | 49.47 | 54.43 | 59.97 | 66.62 | 72.39 | 79.82 | 88.26 | 99.28 |
| Collins | 46.78 | 50.56 | 56.45 | 61.84 | 67.26 | 74.87 | 81.13 | 89.83 | 99.73 |
| (Increment) | 1.64 | 1.09 | 2.02 | 1.87 | .64 | 2.48 | 1.31 | 1.57 | .45 |
| *Girls:* | | | | | | | | | |
| Bowditch | 43.81 | 48.02 | 52.93 | 57.52 | 64.09 | 70.26 | 81.35 | 91.18 | 100.32 |
| Collins | 46.44 | 49.64 | 54.83 | 61.78 | 66.86 | 76.13 | 84.95 | 96.47 | 106.04 |
| (Increment) | 2.63 | 1.62 | 1.90 | 4.26 | 2.77 | 5.87 | 3.60 | 5.29 | 5.72 |

Certainly the growth of children in this country has not been greater than it has been abroad for "periodic records have been kept over a number of years in certain large areas, and from these it is gathered that the 5-year-old English schoolboy and schoolgirl are nearly 2 inches taller than their predecessors of 40 years ago." The boy has gained more than a pound in weight and the girl, about 5 ounces.[5]

[5] London correspondent for Journal of American Medical Association, 88: 256, Jan. 22, 1927.

In London 200 boys, 16 years of age, employed in the General Post Office were 1½ inches taller than 200 boys of like age of 23 years ago and they were 16 pounds heavier.[6]

In Oslo 9-year-old school girls in 1920 weighed, on the average, 54 pounds. In 1930 they weighed 59.4 pounds. Girls of 13 weighed 82.3 pounds in 1920 and in 1930, 89.8 pounds. In 1920, boys of 14 measured 61.4 inches and in 1930, 63 inches.[7]

We have nothing to boast about if our public-school children have increased considerably in size in the past half century. It would seem that conditions in our northeast section have not been so favorable for physical development as they have in some countries abroad.

Dire effects of school conditions upon the health of children have been reported by investigators in some European countries.[8]

In our country no such specific results of educational practices have, we believe, been set down on paper, although, a posteriori, the school has been accused as responsible for myopia, scoliosis, and tuberculosis. While there is the possibility that the school has been a factor in the development of these conditions in some cases, the evidence is not convincing.

## SOCIAL CONDITION AND GROWTH

Bowditch sorted his scholars by social scale for comparison with those in English public schools. He took the measurements of boys of American parentage, attending the public Latin School of Boston, the private Latin School, and the Massachusetts Institute of Technology. The ages ranged from 9 to 18 years.

A comparison of the measurements of these students with the general run of children of American-born parents attending public schools showed the former to be superior

[6] Bashford, H. H. Physique of young Londoners. Lancet, 2 : 1277, Dec. 5, 1931.

[7] Schiotz, C. Nord. Med. Tidskr. 1932, 4 : 807–13.

[8] Terman, L. M. Effects of school life upon the nutritive processes, health, and composition of the blood. Popular Science Monthly, 84 : 257–264, March 1914.

in height and weight. They were of much the same measurements as the twentieth century children of the northeastern United States examined by the United States Public Health Service. It has taken a half century for the average child of American origin, in our public schools, to catch up growth-wise with the child who at that time was sent to certain special schools. Pupils of the same selected schools were "taller and heavier than English boys of the nonlaboring classes attending public schools and universities, the superiority in weight, being as a rule, more marked than that in height."

Gray and Ayres [9] have recently measured some 3,000 children in private schools of Massachusetts, New York, Illinois, and California, and their figures indicate that such children surpass in growth the average child of the northeastern cities measured by the United States Public Health Service even more than the private-school pupils of Boston of 50 years ago exceeded their fellows of the public schools (fig. 1).

This does not argue, however, that conditions in our public schools interfere more with development than do those in private schools.

Bowles [10] in his study of college students finds the Harvard man of today one of the tallest in the world but in 1932, 59.2 percent of the students entering the undergraduate departments of that university were prepared in private schools. It is evident that the proportion of students entering through private schools has much to do with this superior stature. Whether the conditions to which the student is exposed in private schools are in any way responsible for this difference we cannot say but it is not likely that curricular or classroom conditions have anything to do with it.

Among college students "for at least the past 80 years and probably longer there has been marked annual increase in stature. It reached its peak between 1860 and 1870 when the mean annual increase was 0.15 inch. The mean annual increase over 80 years has been approximately 1 centimeter

[9] Gray, Horace, and Ayres, J. G. Growth in private school children. University of Chicago Press, 1931.

[10] Bowles, Gordon T. New Types of Old Americans. Harvard University Press, 1932.

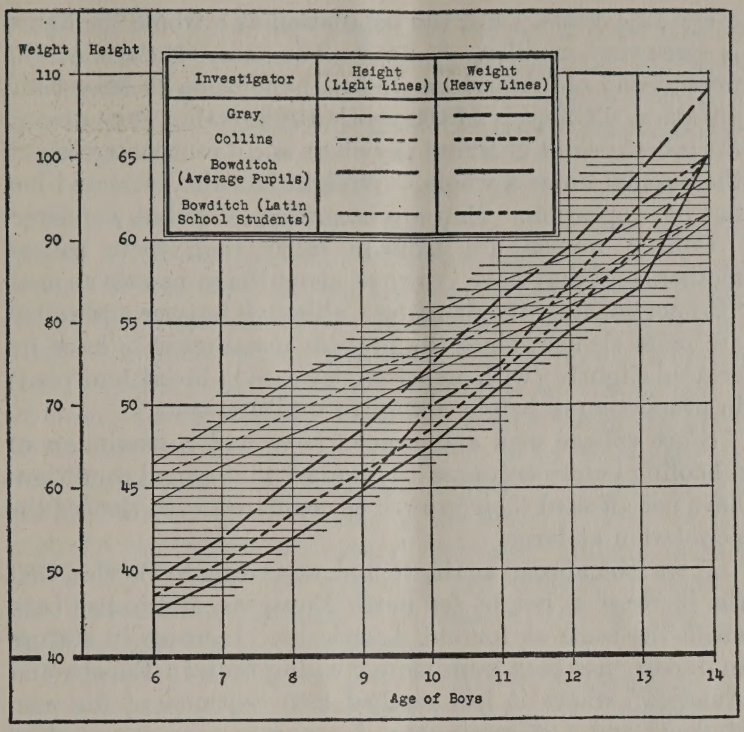



FIGURE 1.—Social condition and growth.

## HEIGHTS AND WEIGHTS OF CHILDREN, 6–14 YEARS OF AGE (WITHOUT CLOTHING) IN PRIVATE SCHOOLS OF MASSACHUSETTS, NEW YORK, ILLINOIS, AND CALIFORNIA[1]

| | Age in years | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| *Boys:* | | | | | | | | | |
| Weight | 48.8 | 54.1 | 61.3 | 67.7 | 75.6 | 82.7 | 89.3 | 98.3 | 108.56 |
| Height | 46.7 | 49.1 | 51.6 | 53.4 | 55.5 | 57.2 | 59.1 | 61.2 | 63.9 |
| *Girls:* | | | | | | | | | |
| Weight | 49.2 | 55.2 | 61.3 | 69.7 | 77.2 | 86.02 | 95.9 | 105.3 | 111.54 |
| Height | 46.3 | 48.7 | 51.4 | 53.5 | 55.1 | 57.5 | 59.8 | 61.8 | 63.0 |

[1] Gray, Horace, and Ayres, J. G. Growth in private school children, University of Chicago Press, 1931.

every 12½ years. For the population as a whole the figure is somewhat smaller. * * * The mean stature of the present-day old American-student population in Massachusetts and vicinity is 178.03 centimeters, rating thus among the tallest people observed anywhere and 4 centimeters above the population as a whole." Weight has also increased but not in proportion. Men are becoming taller but slenderer.

College women are likewise taller than their college mothers and they have grown at about the same rate as men. "Proportionately the daughters, although heavier and taller, are more slender, since the breadth measurements have increased slightly (with an actual decrease in breadth of hips) in proportion to height and girth measurements."

Since college men and women have had a maximum of schooling before entrance it is evident that school conditions have not affected their growth as compared with that of the population at large.

If we look abroad again we find, according to Bowles, that the increase in height for north European adults has been much the same as for old Americans. Increase in stature in Japan "has been even more striking than in Europe and America" where it has reached 2.65 centimeters for men students and 1.06 centimeters for women over a period of 10 years. Among the Mediterranean groups of Europeans the rate of increase has been less marked.

Dr. Diehl [11] of the University of Minnesota finds that—

College men (16 to 21 years of age) attain a maximum growth in height several years earlier than men in the general population and at each age studied are distinctly taller than the men in the groups with which it was possible to compare them; namely, men in citizens military camps, applicants for life insurance, and Army recruits.

Distinct differences exist in the heights and weights of the students of the several colleges studied. In height, the students of private colleges, Princeton, Yale, and Stanford, exceed those of the State universities, and the students of the State universities in turn are taller than the students of the municipal universities studied. In weight, a similar general group with reference to institutions is found, although a certain amount of shifting of the positions of individual colleges or universities occurs.[12]

---

[11] Diehl, H. S. Height and Weight of American College Men. Human Biology, 5: 445–479, September 1933.

[12] Ibid.

Education is an experiment but seldom a controlled experiment and we shall have to confess that the conclusion is a general guess, but certainly in these figures there is no evidence of a deleterious influence of educational conditions upon growth.

## SEASONAL GROWTH

It is possible that effects depressing to growth are produced by school conditions which are made up for by a reaction of the child during the summer vacation. If this is the case there should be statistical evidence of such influence. A number of investigators in this country and abroad have compared the growth of children at school age in different months. Gratsianoff[13] in Russia found the maximum increase in weight from June 20 to November 15; Malling-Hansen[14] in Holland, August to September 15; Schmid-Monnard[15] in Germany, the same; Porter[16] in this country, September to January; Gebhart,[17] Italians in New York City, late summer and early fall; Bleyer,[18] infants in the United States, August to September; Orr and Clark[19] in Scotland, July and September.

In general these investigators agree on a maximum increase in weight in the late summer and fall. Gratsianoff, Malling-Hansen, and Orr, and Clark studied the heights of children and found that the maximum increase occurred in summer.

There has been an inclination among interpreters of these seasonal variations to find the school in some degree implicated in the lessened growth during the greater portion of the school year. This may be the case to some extent but we have no means of knowing the growth of children of school age who do not attend school.

---

[13] Gratsianoff, N. A. Physical development in childhood and growth, St. Petersburg, 1889.

[14] Malling-Hansen, P. R. Euber periodizitat in Gewicht der kinder an taglichen wagungen, Kopenhagen, 1883.

[15] Schmid-Monnard, K. Euber den Einfluss der Jahrszeit und der Schule auf das Wachstum der Kinder, 1895.

[16] Porter, T. W. American Journal of Physiology, 52. 121, May 1920.

[17] Gebhart, J. C. Publication 132, New York Association to Improve the Conditions of the Poor, New York, 1924.

[18] Bleyer, A. Archives of pediatrics, 34 : 366, May 1917.

[19] Orr, J. B., and Clark, M. L. Seasonal variation in growth of school children, Lancet, 2 ; 365–367, August 16.

As indicated by any curve of morbidity for the year, the winter season is the season of sickness. Absence from school on account of sickness begins to mount in October and climbs highest in February to decline sharply in April and May. This is the season of communicable diseases and doubtless if children did not attend school there would be less communication of infections. Again we have no control group.

Emerson [20] collected information concerning the rate of growth in different localities (New York City, Toronto, and Honolulu) of children without illness and in favorable surroundings and found the rate to be regular regardless of the season of the year.

More recently Palmer [21] found the maximum increase in weight of some 2,500 native-born children of Hagerstown, Md., to occur during the fall months, intermediate rates during the winter and minimum rates during the spring. "The average rate of growth during the summer period is approximately equal to the rates observed during February and March."

To test Emerson's conclusions Palmer made a "comparison of the monthly growth rates of a selected group of children who were not absent from school during an entire year, with the remainder of the group who were absent 1 or more days because of sickness." The results showed "that the typical seasonal variation in growth is not the result of including in the data records of seriously ill children who fail to gain or who lose weight."

Apparently, then, there is a seasonal variation and if sickness has nothing to do with it, obviously the school as a source of infection is not an important factor. The diagram showing the variation in weight increase and the sickness incidence rates would seem to indicate some relationship, since the former declines as the latter rises until about December 1st, but the curve for sickness continues to rise until the middle of February, although the weight increase remains about stationary, while after March, sickness incidence and weight increase decline together.

---

[20] Emerson, Haven. Seasonal growth of school children. Journal, American Medical Association, 89 : 1326–30, October 1927.

[21] Palmer, Carroll E. Seasonal variation of average growth in weight of elementary school children. Public Health Reports, 48 : 211–233.

Fitt [22] working in the Southern Hemisphere, not only studied the monthly height and weight measures of 355 Melbourne children but also made monthly tests of memory and attention. Two memory tests were used, "the first consist-

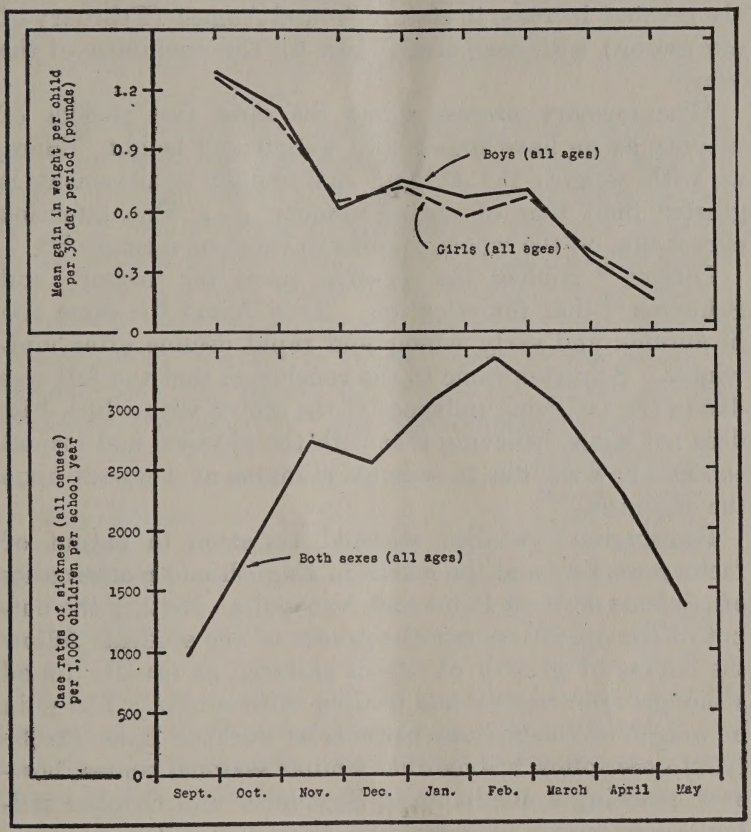



FIGURE 2.—Seasonal variation of average monthly growth rates and seasonal variation of sickness incidence rates, as observed in elementary school children, Hagerstown, Md. (From U. S. Public Health Service Report, March 3, 1933, vol. 48, no. 9, p. 320.)

ing in the learning of well-known words which were read out in regular succession, the second of nonsense-syllables which were presented visually." The cancelation test was used for measuring concentration of attention. Fitt plotted

[22] Fitt, A. B. The human energy-rhythm throughout the year. Australia Association for the Advancement of Science, 16: 704–742, 1923.

curves of growth at different school-grade levels as well as for the total group. He found the maximum weight increase "usually in the autumn and in these cases there is a fall to a lower level in winter, except in two cases where the high level is maintained till about midwinter." He found the greatest increase in stature "round August (February of our season) with comparative rest for the remainder of the year."

"The memory process shows the same two periods of activity as we have found with weight and height. Here, as with weight, the autumn and winter achievement is greater than that of spring-summer. . . . The attention curves are, on the whole, similar to those of memory."[23]

Lobsien [24] studied the seasonal curve for memory and Schuyten [24] that for attention. They found the same rise in autumn and early winter and rapid decline after midwinter. Schuyten came to the conclusion that the fall was due to the fatiguing influence of the school with which Fitt does not agree, believing that both the physical and mental ebb and flow are due to seasonal stimulus or demands upon the organism.

Huntington [25] studied seasonal variation in output of factory workers and the marks in English and mathematics of students at West Point and Annapolis. Neither the output of the operatives nor the grades of the students follow the curves of growth of school children as usually found although Huntington was dealing with adults. The gain in weight of tuberculous patients at Saranac Lake (1893–1902) does follow a somewhat similar seasonal course, however, reaching a maximum in September and October falling to a minimum in March and April.

Phillips [26] found that tuberculous patients in Arizona lost weight from April to July and gained during other months.

---

[23] Ibid.

[24] See footnote 22 for quotation.

[25] Huntington, Ellsworth. Civilization and climate. Yale University Press, 1922.

[26] Phillips, E. W. Change of climate and altitude. Its effects on tuberculous patients. American Review of Tuberculosis. 27: 247–258, 1933.

## DEFECTIVENESS

Although the school child of today is relatively larger than his parent and grandparent in their school days, is he less "sleazy" than his ancestors? Here we have no first-hand data for comparison. We know that mortality in infancy and preschool life is much lower than formerly and it is often said that this means a survival of the less fit. This again is not proved.

Larger physique no doubt means on the whole better nutrition at all ages and especially at the younger ages and better nutrition means comparative freedom from defects. We have good evidence in unpublished statistics from the United States Public Health Service that superior height and weight go with comparative freedom from common defects and there is striking evidence of the relationship of unsatisfactory feeding to defectiveness in the study by McGonigle.[27] His figures for defects in children on diets considered "satisfactory" and "unsatisfactory" are:

| | *Percent satisfactory* | *Percent unsatisfactory* |
|---|---|---|
| Bone defects | 31.18 | 55.01 |
| Pharyngeal conditions | 10.22 | 23.85 |
| Dental decay | 17.45 | 36.59 |
| Squint | 1.34 | 6.23 |
| Anaemia | 21.51 | 40.92 |
| Otorrhea | 9.14 | 13.82 |

Many physical defects are the sequellae of communicable diseases such as measles, scarlet fever, whooping cough, and mumps. These diseases have declined in frequency through public-health activities and better living conditions, and cases which are contracted receive much better care than formerly so that lasting injury to eyes, ears, nose, heart, etc., from this cause must be much less common than a century ago or half a century ago. The school of today may be an agency for the spread of such diseases, but it is much less such an agency than when it was more crowded and less well ventilated and when there was less attention on the

[27] McGonigle, G. M. C., and McKinley, P. L. An investigation in the effects of certain factors upon child health. Journal of Hygiene, 32 : 465–488, October 1932.

part of teachers to the signs of such disease and to exclusion of cases.

On the whole the school child of today is doubtless less defective than the school child of a century ago even if he is still much less perfect than he ought to be.

It might be expected that for the third of a century over which medical inspection of school children has been conducted we would have some accurate figures as to comparative physical condition, but, even in the same school system, the standards of defectiveness (or perfection) have changed so much as to render a comparison impossible. Besides, medical inspection and treatment do not prevent or reduce defectiveness in the next generation of school children.

## VISION OF THE SCHOOL CHILD

Among the disastrous results attributed to school work and school conditions is impaired vision. Cohn, the pioneer in the visual examination of school children came to the conclusion 65 years ago that school work was productive of myopia. All examiners since Cohn have found that myopia becomes more frequent with advancing school years, but Pearson used Cohn's statistics to prove that the later a child entered school the worse was his myopia.

Some examiners of military recruits have reported high degrees of myopia among the least educated but Tscherning reported more than twice as many myopic among students in the Army as in men recruited from other occupations. A recent study by Sourasky [28] would seem to show that the use of difficult print (Hebrew characters) has no influence in increasing myopia.

Recent studies point to poor nutrition again as implicated in the progress or causation of this condition.

The vision of children who do superior school work seems no worse, and from some statistics is better, than that of children who do poor work although the former doubtless use their eyes considerably more both for study and for reading.

---

[28] Sourasky, A. Race, sex, and environment in the development of myopia. British Journal of Ophthalmology, 197–212, April 1928.

Although the statistical grounds are slight the general opinion of school hygienists is that school tasks may have a detrimental influence on vision and in proportion as the conditions of lighting and printed characters are poor. If this is the case the school children of the present day must be less affected than those of a previous day. Excessive tasks prescribed for home work (often done under poor conditions and falling hardest on the slowest pupils) certainly offer more of a menace to the eyes than the work of the school itself.

### LONGEVITY OF THE SCHOOL CHILD

From 1868 we have mortality statistics in Massachusetts [29] at various ages, and from 1868 to 1890 the death rate of children of school age remained at about one level, around 8 per 1,000 between 5 and 9 years of age; about 3.8 between 10 and 14 years; and around 6 between 15 and 19. There has been a steady decline in mortality since 1890 to about 1.7 for the first group, 1.4 for the second, and about 1.8 for the third. The decline in mortality at ages under 5 has been as rapid. At least the public school has not been a hindrance to increased longevity and the school health-service introduced in this century must have contributed something to the conditions which have lengthened the life of the average school child so appreciably. Through more immunization of children, the better education of teachers in the detection of the first signs of communicable disease, and by other hygienic measures we may expect even more lengthening of life.

### EFFECTS OF STRESS AND STRAIN

Just what the effect upon growth may be of the stress and strain to which many children are subject in school cannot be set down in figures. School methods in general are more kindly than they once were but compulsory school attendance drives into school and keeps there, many pupils who would once have been elsewhere and such children are not infrequently unhappy and depressed mentally and physi-

[29] Wiehl, Dorothy G. Trends in mortality and life expectancy. Milbank Memorial Fund Quarterly Bulletin, 11: 61–72, January 1933.

cally by unsuitable tasks imposed in company with more able companions. School sickness [30] is a very real condition with some children.

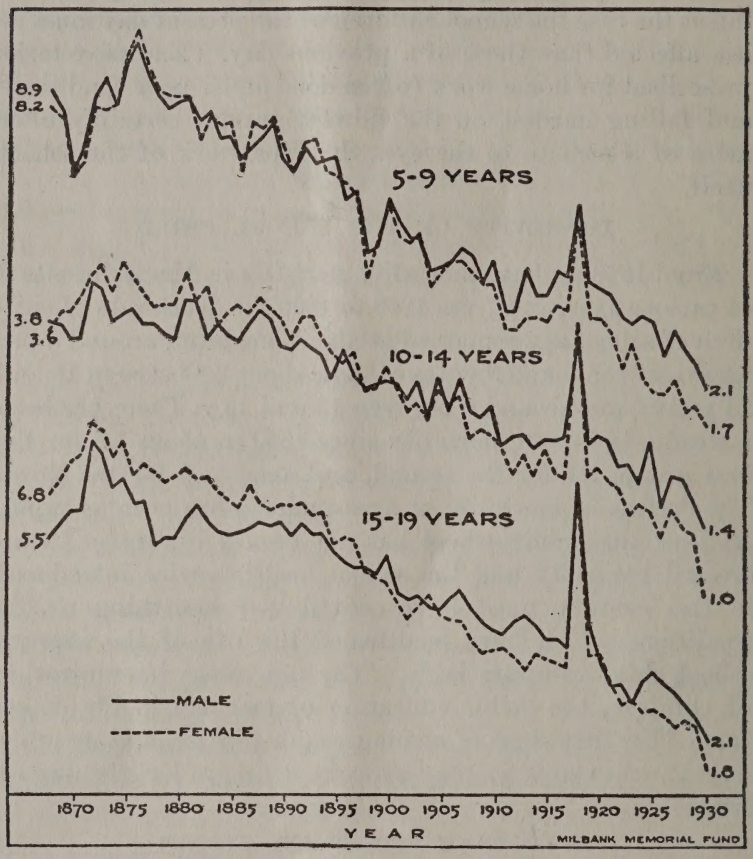



FIGURE 3.—Trends in mortality among persons of different sex-age groups in Massachusetts, 1868–1930. A logarithmic ordinate scale is used. The death rate per 1,000 population is given for the first and last year of the period.

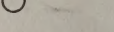
## PHYSIQUE AND MENTALITY

If school children are bigger and better in body than they were a century ago, are they relatively broader and brighter in mind? Unfortunately we have no figures from mental yardsticks or scales for comparison. The results of many studies in recent years, however, show clearly enough that

[30] Rogers, J. F. School Life, 17 : 45, November 1931.

on the average (with heavy emphasis on the word average) the brighter or more intelligent student, as measured by school progress and other tests, is larger and more nearly perfect physically than is his less brilliant fellow. Possibly then the school child and college student of today are, on the average, of larger mold mentally than were the school child and college student of Revolutionary days. However, considering the educational advantages offered the scholar of today, we should shrink from an actual comparison if it were possible.

Leaving out the fact that education is usually compulsory (which complicates the situation) the child of today is probably exposed to conditions more conducive to mental development than were his ancestors and, on the whole, he attends a school which furnishes conditions more favorable to health and to physical development than was the case a century since. However, the increase in dimensions, which has gone forward, took place in spite of, rather than because of schools. Pupils in private schools excel in physique those in public schools not because of better school conditions but because of better home conditions. We have little reason to be smug about the matter for like the Jeremiah of Athol, we could complain that the health of the child in both public and private schools is seldom given the consideration we think it deserves. Practice lags behind knowledge as it did centuries ago and the fact that the school attendance has been made compulsory, and for many years, makes any such lag the more regrettable. However, we are progressing.



L111 .A3L43 v.36
Leaflet.
Princeton Theological Seminary–Speer Library
1 1012 00002 3434